



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,480	09/15/2003	Kiyoshi Honda	16869P-078800US	2877

20350 7590 12/09/2005

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER

CHACE, CHRISTIAN

ART UNIT PAPER NUMBER

2189

DATE MAILED: 12/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/663,480	Applicant(s) HONDA ET AL.	
	Examiner Christian P. Chace	Art Unit 2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office action has been issued in response to amendment filed 3 October 2005. Claims 1-26 are pending. Applicants' arguments have been carefully and respectfully considered, but they are not persuasive. Accordingly, this action has been made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe et al (EP 1,130,514 A2).

With respect to independent claim 1, a virtualization controller is disclosed in the abstract. "[F]or controlling data transfer between a host system and a plurality of storage devices" is an intended use limitation, and has not been given patentable weight. However, the abstract does disclose just such an inherent use of a virtualization controller.

A plurality of first ports is disclosed in figure 1, #112 that connect to the storage, #103 and #104, e.g.. "[F]or connection with the plurality of storage devices" is an intended use limitation, and has not been given patentable weight. Ports are inherently capable of connecting to a storage area. Storage devices inherently have a storage

area to store data. Alternatively, however, in light of the interpretation under 112 as discussed supra, a port having a storage area is disclosed in figure 20.

A second port is disclosed in figure 1 as port controller #112 that connects to a host, #101. "[F]or connection with the host system" is an intended use limitation, and has not been given patentable weight. Ports are inherently capable of connecting to a host.

A processor is disclosed in figure 1, #114.

A memory is disclosed in figure 1, #116. The memory being configured to store volume mapping information which correlates first identification information used by the host system to access a first storage area in one of the storage devices, with second identification information for identifying the first storage area, the correlation being used by the processor to access the first storage area is an intended use limitation, and has not been given patentable weight. Memory is inherently capable of storing the claimed information – any information, actually. However, figure 6 discloses a mapping table (correlation information) which stores a virtual address (first identification information) and a physical address (second identification information). Also, see figure 1, #118, figures 20 and 21, and Paragraph 48.

When data is stored in the first storage area is transferred to a second storage area in one of the storage devices, the processor correlating the first identification information with a third identification information (new physical address) for identifying the second storage area and registering the first identification information and the third identification information in the volume mapping information is discussed at paragraph

83 in column 11, lines 25-31. When the data is moved, the real address is changed in the mapping table.

With respect to claim 2, upon receipt of data including the first identification information, the virtualization controller controlling data transfer of the data between the host system and the first storage area based on the correlation information in the volume mapping information is disclosed in figure 13, and discussed in column 15, line 50 into column 16, line 15.

With respect to claims 3 and 11, the second identification information for identifying the first storage area comprising real port identification of the storage device containing the first storage area and LUN (figure 14, #1401) designating the first storage area is disclosed in figure 14, #1402.

With respect to claims 4 and 22, the second identification information comprising “personal identification” of the first storage area contained in the storage device is disclosed in figure 14 as “status.”

With respect to claim 5, the memory is discussed supra. What it may or may not be “configured to” do is merely intended uses of which a memory is inherently capable of doing. However, storing routing information which indicates a relationship of connection among the virtualization controller, the storage devices, and the host system is disclosed in figure 13, #1318, e.g.

The processor, upon receipt of data from the host system or any of the storage devices, deciding whether to give the data identification information or not according to identification information stored in the volume mapping information is disclosed in

column 13, lines 30-40, which discusses data movement based on status, such as “normal” or “migrating.”

With respect to claims 6 and 13, the first storage area and the second storage area being storage areas of different storage devices is disclosed in figure 13, #13030 and #1304.

With respect to claims 7 and 15, when transfer of data stored in the first storage area to the second storage area is started, if a request for access to the first storage area is received from the host system, the processor holding the request, and then sending the held request to the storage device having the second storage data upon completion of the transfer of data is disclosed in column 13, lines 30-40. The processor merely waits to access the data until it is moved.

With respect to claim 8, the processor is disclosed as discussed supra. What is may or may not be “configured to” do is merely an intended use limitation, and has not been given any patentable weight. Processor are inherently capable of doing anything they are programmed to do. However, column 11, line 55 into column 12, line 27 discusses notifying another virtualization controller of the volume mapping information.

With respect to claim 9, the virtualization controller comprising a third port is disclosed in figure 1 #112. The remaining limitations of this claim are intended use limitations, and have not been given patentable weight, as ports are inherently capable of connecting to anything, and managing units are inherently capable of doing anything they are “configured to” do. However, figure 13, #1350 discloses a managing unit

connected to one of the ports of the device, which monitors the status, or state of the devices, as shown in figure 14.

With respect to independent claim 10, a data control system connected to one or more host systems is disclosed in figure 13.

A plurality of storage devices each having a storage area is disclosed in figure 13, #1330 and #1341.

A switch which is connected with the plurality of storage devices and the one or more host systems is disclosed in figure 13, #1302, with the host systems being #1301.

The remaining limitations of the instant claim correspond directly to the limitations of claim 1, including the intended use limitations, with the only difference being that the instant claim refers to the virtualization controller of claim 1 as a switch, and the processor of claim 1 is now a routing processor. They are disclosed by the respective showings of the prior art as discussed with respect to claim 1.

With respect to claim 12, the switch further comprising a data transfer processor which controls the process of transferring data stored in a storage area of one of the storage devices to another storage area of one of the storage devices and when data stored in the first storage area is transferred to the second storage area, the data transfer processor correlates the first identification information with the third identification information and registers and stores the correlation information in the memory is disclosed in column 12, line 31 into column 14, line 2.

With respect to claim 14, a managing unit connected [to] the switch, having a volume manager is disclosed in figure 13, #1350. A managing unit is inherently capable

of performing any task it is configured to do (intended use limitation, as discussed supra).

With respect to independent claim 16, a method of controlling data transfer in a system including a host system which uses first identification information to access a first storage area in one of a plurality of storage devices, wherein the first storage area includes data "associated with" second identification information identifying the first storage area is disclosed as discussed supra in relevant part with respect to independent claims 1 and 10.

Issuing a data transfer request (e.g., migration) to the first storage device to transfer data with the second identification information in the first storage device to a second storage device and upon receipt of notification of completion of data transfer from the first storage device to the second storage device, correlating the first identification information with a third identification information identifying the second storage area containing the transferred data is disclosed in column 12, line 31 into column 14, line 2, e.g.

With respect to claim 17, registering the first identification information and the third identification information in a volume mapping [table?] and storing the volume mapping table in a memory and converting the data with the first identification information transferred from the first storage device into data with the third identification information transferred to the second storage device is disclosed as remapping the port configuration table, as shown in figure 6, e.g.

With respect to claim 18, holding an access request to the first storage device after issuance of the data transfer request and sending the held access request to the second storage device after receipt of notification of completion of the data transfer is disclosed in column 13, lines 30-40.

With respect to independent claim 19, a method of connecting a virtualization controller between a host system and a storage device which are connected through a first path between a first port of the host system and a first port of the storage device and a second path between a second port of the host system and a second port of the storage device is disclosed in figure 13, where the host system comprises the hosts, and storage devices are the old and new devices.

Accessing a storage area of the storage device, disconnecting the second path between the second port of the host system and the second port of the storage device are disclosed in column 14, lines 6-29.

Connecting the second port of the host system with the virtualization controller through a third path, connecting the virtualization controller with the second port of the storage device through a fourth path are disclosed in column 12, line 31 through column 14, line 2.

Setting, on the virtualization controller, identification used by the host system to identify the storage area, identification information for the virtualization controller is shown in figure 6. The correlation being to define access of the storage area by the host system is an intended result limitation, and has not been given patentable weight. It is an inherent result of the structure of the claim, as anticipated by the cited prior art.

With respect to claim 20, sending, from the virtualization controller to the host system, the identification information used by the host computer [system?] to identify the storage area, and the virtual port identification information is disclosed in column 11, line 15.

Sending, from the host system to the virtualization controller, an access request to access the storage area using the virtual port identification information through the second port of the host system is disclosed I figure 6.

Upon receipt of the access request from the host system, accessing the storage area via the fourth path by the virtualization controller is disclosed in column 13, lines 30-33.

With respect to claim 21, the access request comprising data with the virtual port identification information is disclosed in column 11, lines 25-31.

Accessing the storage area comprising sending the data associated with the virtual port identification information from the virtualization controller to the storage area via the fourth path is disclosed in column 13, lines 30-33.

With respect to claim 23, the identification information for the second port of the storage device and the virtual port identification information for the virtualization controller are both "correlated with" the identification used by the host system to identify the storage area to define an access path from the host system to the storage area is disclosed in figure 6.

With respect to independent claim 24, a method of controlling a data transfer in a system including a host system which uses a first identification information to access a

Art Unit: 2189

first storage area in one of a plurality of storage devices, wherein the first storage area includes data associated with second identification information identifying the first storage area is disclosed in figure 13, and discussed supra with respect to the previously discussed independent claims.

Receiving a first request with the first identification information from the host system to access the data associated with the second identification information identifying the first storage area, sending a second request with the second identification information to the first storage area, receiving data "corresponding to" the second request from the first storage area, and sending the data to the host system is disclosed in figure 6, e.g., in addition to have been discussed supra with respect to several claims. This is what a mapping table does – it maps a request to the correct location for the data and then the data is returned.

Claim 25 is disclosed in column 11, lines 25-31.

Claim 26 is merely sending yet another request after the one of claim 25. Accordingly, the same recitation anticipates it. Inherently, there will be more than one request for data in the system – otherwise there would be no need to keep it.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-26 rejected under 35 U.S.C. 102(e) as being clearly anticipated by Nelson et al (US Patent Application Publication #2004/0068637).

Keeping in mind the intended use limitations as discussed supra, paragraph 13 discusses virtual to physical address mapping in a controller. Paragraph 38 discusses migrating data in response to a transfer command. Other very relevant passages are paragraphs 19, 21-24, 27-28, 33-35, 39-40, 45, 58, 60, 66, 69, and 79. Also, see figure 4 in particular.

Claims 1-26 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by McKean et al (US Patent #6,647,387).

Again keeping in mind the intended use limitations discussed supra, relevant passages include, column 1, lines 35-41; Column 4, lines 4-11, 22-29, and 60-62; column 5, lines 40-45 and 63-67; column 6, lines 1-2 and 39-67; and column 7, line 1.

Response to Arguments

With respect to applicants' argument that Watanabe et al do not teach or suggest the mapping changes after the data migration, examiner respectfully disagrees. In fact, in paragraph 83, as cited in the rejection supra, Watanabe et al specifically teach that waiting until the data is finished before changing the mapping is desirable. In addition, examiner notes that when information is moved, or migrated, there must, inherently, be a change in the mapping information in order for the system to ever be able to access it. This also must, inherently, be completed after the data is moved – otherwise there is no way to know where the data is.

With respect to applicants' arguments regarding the Nelson reference, examiner respectfully notes that applicants' arguments are not commensurate with the claim language. For example, nothing in the instant claim language requires the same information to be accessed to find the source and destination before and after the migration.

With respect to applicants' arguments regarding the McKean et al reference, applicants repeat their arguments supra with respect to the other references. Accordingly, examiner refers applicants to the responses supra with respect to same.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian P. Chace whose telephone number is 571.272.4190. The examiner can normally be reached on MAXI FLEX.

Art Unit: 2189

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 571.272.4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'C.P. Chace', with a long horizontal line extending to the right.

Christian P. Chace
Primary Examiner
Art Unit 2189